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Asymmetry in the Prime Rate and Firms' Preference for Internal Finance

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ASYMMETRY IN THE PRIME RATE AND FIRMS' PREFERENCE FOR INTERNAL FINANCE

ABSTRACT

This article tests for asymmetry in the behavior of bank lending rates by testing the hypothesis that the prime rate responds more fully and quickly to increase than decreases in market interest rates. The econometric methodology used is better suited to the discreteness and rigidity of the prime rate than that of previous studies. Our results suggest that banks adjust the prime rate asymmetrically in response to change in the discount rate, the commercial paper rate, and the spread between the prime and commercial paper rates. Asymmetry in bank lending rates is implied by several explanations for the preference among small firms for internal finance. Asymmetry in bank lending rates may result from the fact that individual banks have acquired costly information which prevents their customers from responding quickly to changes in loan terms, or it may stem from a cyclical "lemons" premium resulting from informational asymmetries [Oliner and Rudebusch (1992)]. Either way, asymmetric behavior of bank lending rates, such as the prime rate, may be part of a more complete explanation of small firms' preference for internal finance.

KEYWORDS: Internal Finance, Prime Rate, Information Asymmetry

JEL CLASSIFICATION: C25, G22, E22

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Many analysts believe that banks adjust their lending rates more slowly when interest rate are falling than when they are rising. As evidence of such behavior, they point to the apparent sluggishness in banks' adjustment of the prime lending rate to declining market rates. Asymmetry of the prime rate is often viewed as a matter of curiosity and perhaps an indicator of the market power of banks. However, we believe that evidence of asymmetry in the prime rate supports recent explanations of a financing hierarchy, where firms turn to external finance only after exhausting their internal funds.

If bank lending rates rise rapidly when market interest rates are rising, yet decline sluggishly when market interest rates are falling, firms may prefer internal finance because the opportunity cost of internal funds moves in tandem with market rates. Because many smaller medium size firms are dependent on banks for external finance, evidence that the premium for external, bank finance rises when interest rates are falling would provide at least a partial explanation for documented differences [e.g., Fazzari, Hubbard and Petersen (1988); Gertler and Gilchrist (1991, 1992a,b); Gilchrist (1990); Gilchrist and Himmelberg (1990); Oliner and Rudebusch (1992); and Whited (1992), Calomiris and Hubbard (1993)] in the investment behavior of small and large firms.[1]

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[1]The investment behavior of small firms has received considerable attention as analysts have attempted to verify whether a "credit crunch" contributed significantly to the 1990-91 recession [e.g., Bernanke and Lown (1991) and Morgan (1992)]. Stories of credit-constrained firms have also renewed interest in the "credit

Asymmetry in the prime rate may also have implications for the efficacy of monetary policy. In particular, it could help explain why Cover (1992) and Rotemberg (1993) conclude that easy monetary policy is less expansionary than restrictive monetary policy is contractionary. During periods of falling interest rates, downwardly sluggish bank lending rates would dampen the stimulus that monetary policy could provide to investment spending, whereas in periods of rising interest rates, bank lending rates would generally increase in tandem with market rates.

Despite the widespread belief that the prime rate adjusts more slowly when interest rates are falling, evidence of asymmetry in the prime has been mixed. Arak, Englander and Tang (1984) and Levine and Loeb (1983) find evidence of asymmetric price-setting behavior, while Goldberger (1984) and Forbes and Mayne (1989) find little evidence of asymmetric pricing behavior. Previous findings should be interpreted cautiously, however, because none of the previous research used a methodology that accounts for both rigidity in the prime and the discrete nature of its changes. In addition, none of the previous research has allowed for the possibility that banks respond to pressures exerted when the Federal Reserve changes its discount rate. That changes in the discount rate may be important to explaining the behavior of the prime rate is supported by Hendry (1992), who found changes in the Bank of Canada's

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channel" of monetary policy [e.g., Bernanke and Blinder (1992), Kashyap, Stein and Wilcox (1993) and Oliner and Rudebusch (1993)].

Bank Rate to be the most important variable in explaining changes in the Canadian prime rate.[2]

We test for asymmetry in the setting of the prime rate by allowing the prime rate to respond differently to increases and decreases in the commercial paper rate, the discount rate and changes in the spread between the commercial paper and prime rates and between the federal funds and discount rates. We allow for asymmetry in both the degree to which banks respond to changes in rates and rate spreads and the speed with which they respond. Our results suggest considerable asymmetry in the response of the prime rate to changes in the discount rate and market interest rates. Generally speaking, there is evidence of asymmetry in both the degree and the speed of the response.

I. THE IMPORTANCE OF THE PRIME RATE AND SOURCES OF ASYMMETRY

The prime rate is considered the rate banks charge their most creditworthy customers. The importance of the prime rate has been questioned because banks make loans at rates below their prime. Nevertheless, the Federal Reserve's survey of terms of lending of commercial banks, shown in Figure 1, shows that a significant proportion of bank loans are made at rates at or above the prime rate. In addition, while there has been a downward trend in

[2]Thornton (1986) also showed that the prime rate appears to have adjusted fairly rapidly to changes in the discount rate during the period from the fall of 1982 to the spring of 1986.

the proportion of short-term business loan made at rates at or above the prime rate during the last decade, there has been little change in the proportion of long-term business loan made at prime.

James (1982) has argued that indexing loan rates to the prime rate minimizes the moral hazard potential of opportunistic price setting by banks. If lending rates are indexed to the prime rate, asymmetry in the behavior of the prime rate implies asymmetry in the behavior of other lending rates — even loans that are not explicitly tied to the prime. The prime rate may also serve as a benchmark against which many firms assess their own credit worthiness.

Asymmetric price setting can stem from information asymmetries.[3] For example, banks specialize in acquiring costly information about their business customers. Consequently, some firms will find it difficult to switch quickly from a lender who knows them to a lender who does not if their present lender were hesitant to reduce its lending rate in response to decreases in market rates. Knowing this, banks might adjust their lending rates more slowly in response to decreases in market rates than to increases. While potentially valid, Rajan (1992) has argued that such opportunistic behavior may not fit into a bank's optimal longer-run cooperative strategy.

[3]Asymmetry in the prime rate is sometimes attributed to banks possessing market power. Market power only implies that the prime rate will react sluggishly or incompletely to changes in market interest rates, it cannot account for asymmetric behavior [see Hannan (1991)].

Asymmetric price setting may also stem from information asymmetries that give rise to a lemons premium [Oliner and Rudebusch (1992)]. In cyclical downturns, for example, market interest rates tend to decline as credit demand falls. Recognizing that small firms generally have higher and more cyclical probabilities of failure than large firms, financial markets may require a larger risk premium on loans to small firms during periods of declining interest rates.[4] Banks may extract this premium by lowering their lending rates relatively slowly during periods of declining market rates.

II. MODELING THE BEHAVIOR OF THE PRIME RATE

The empirical work presented here consists of modelling the prime rate as a function of variables which might cause money-center banks to adjust their prime rate. The ordered probit model is used because weekly changes in the prime rate occur infrequently and have taken on only eleven values, from minus 200 basis points to plus 150 basis points. While other models [e.g., Forbes and Mayne (1989)] account for the rigidity of the prime rate, the ordered probit model accounts for its rigidity and for the discrete nature of prime rate changes.[5]

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[4]For evidence of this, see Slovin, Sushka and Poloncheck (1993).

[5]The multinominal logit is another model which could capture discreteness and rigidity, but it would impose an independence of irrelevant alternatives assumption that is undesirable for prime rate changes. The odds of a 100 basis point increase in the prime, relative to a 25 basis point increase, should not be invariant to different values of the probability of 100 basis point decrease in the prime.

The ordered probit model evaluates the probabilities of different-sized changes in the prime rate as functions of explanatory variables X:

$$Prob(\Delta Prime \leq -1) = \Phi(X\beta) \tag{1}$$

$$Prob(\Delta Prime = -.5) = \Phi(X\beta + c_1) - \Phi(X\beta) \tag{2}$$

$$Prob(\Delta Prime = -.25) = \Phi(X\beta + c_2) - \Phi(X\beta + c_1) \tag{3}$$

$$Prob(\Delta Prime = 0) = \Phi(X\beta + c_3) - \Phi(X\beta + c_2) \tag{4}$$

$$Prob(\Delta Prime = .25) = \Phi(X\beta + c_4) - \Phi(X\beta + c_3) \tag{5}$$

$$Prob(\Delta Prime = .5) = \Phi(X\beta + c_5) - \Phi(X\beta + c_4) \tag{6}$$

$$Prob(\Delta Prime = .75) = \Phi(X\beta + c_6) - \Phi(X\beta + c_5) \tag{7}$$

$$Prob(\Delta Prime \geq 1.0) = 1 - \Phi(X\beta + c_6) \tag{8}$$

$\Phi(\,)$ is the standard normal cumulative distribution function and X is a T by K matrix of the determinants of prime rate change and β is a K by 1 vector of unknown parameters. The coefficients c_j are ordered in that $c_6 > c_5 > \ldots > c_1$, so that the cumulative probability increases monotonically going from the smallest to the largest change. Estimates of β show how the probabilities of prime rate changes vary with different values of the explanatory variables. Almost any degree of rigidity can be parameterized within the ordered probit framework. The rigidity of the prime rate is captured by the difference between the estimates of c_3 and c_2. If this difference is large, the probability of no change in the prime rate will be high. Exceptions occur when $X\beta$ is unusually large in absolute value: a large positive value of $X\beta$ means that the prime is likely to decrease; large negative values imply that an increase is likely.

Defining $Z_{tj}=1$ if y_t (the change in the prime) is in category j and zero otherwise and also setting $c_{-1}= -\infty$, $c_0=0$ and $c_7= \infty$, the log-likelihood to be maximized is

$$\log L = \sum_t \sum_{j=0}^{7} Z_{tj} \ \log[\Phi(c_j+x_t'\beta)-\Phi(c_{j-1}+x_t'\beta)]. \tag{9}$$

Pratt (1981) shows that the log-likelihood function is globally concave as a function of the parameters, so any non-linear maximization algorithm will converge to the global maximum.

III. DATA AND EXPLANATORY VARIABLES

The model is estimated using weekly (Friday-to-Friday) changes in the prime rate for the period from the week ending January 5, 1973 to the week ending February 5, 1993. The frequency distribution of weekly changes in the prime rate is presented in Table 1. A non-zero change in the prime rate took place in about 20 percent of the weeks. While there were more prime rate increases than decreases, the average change in the prime was exactly zero over the period.

The explanatory variables, all of which are lagged and expressed in percentage changes, include: the weekly change in the discount and 90-day commercial paper rates and weekly changes in the spreads between the prime rate and the 90-day commercial paper rate and between the federal funds rate and the discount rate.[6]

Changes in all of the variables are partitioned into positive and negative changes to test for asymmetry in the setting of the prime rate. The estimated coefficients on both positive and negative changes in all variables should have the same sign. For example, the coefficient on the change in the discount rate should be negative, because an increase in the discount rate should reduce $X\beta$ and thereby reduce the probability of a cut in the prime rate. Likewise, a decrease should increase $X\beta$ and the probability of a cut in the prime rate.

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[6]Following previous research, we originally specified the model using the rate spreads rather than the first-difference of the rate spreads. This led to considerable persistence in the estimates of the expected changes in the prime rate. When the first-differences of the spreads were used the log likelihood function changes little, but the persistence in the forecasts was eliminated. It appears that the near unit root processes that characterize the rate spreads (the estimated roots were .989 and .950 for the prime rate-commercial paper rate spread and the federal funds-discount rate spread, respectively) spilled over into the forecasts of the expected change in the prime rate.

In addition, we also experimented with the spread between the federal funds rate and the 3-month T-bill rate. This spread provided little explanatory power, so it is not included in the results reported here.

Evidence of asymmetry in the response of the prime rate to changes in the discount rate is obtained by testing for equality of coefficients across increases and decreases in the discount rate. The asymmetry hypothesis asserts that the absolute value of the coefficient on increases is larger than that on decreases.

Changes in the discount rate tend to lag changes in market rates, including the federal funds rate. If the funds rate falls relative to the discount rate, the probability of cuts in both the discount and prime rates should increase. The opposite change is implied if the funds rate increases relative to the discount rate. Consequently, the coefficient on the change in the spread between the federal funds and discount rates should be negative for both increases and decreases in the rate spread. This relationship ought to hold even at times when the Fed does not actually change the discount rate, so including the rate spread along with changes in the discount rate should enhance the model's ability to predict changes in the prime rate.

The coefficient on changes in the commercial paper rate should be negative: an increase in the commercial paper rate should decrease the probability of a cut in the prime rate. Because much previous research has included the spread between the prime and the commercial paper rate, we also included changes in this spread. A narrowing of the prime-commercial paper spread should increase the probability of an increase in the prime rate, so the coefficient on this rate spread should be positive.

To gauge the speed with which banks adjust the prime rate to changes in the explanatory variables, distributed lags of each of these variables were included. The model uses a sixth-order distributed lag of both increases and decreases in the discount rate and a fourth-order distributed lag for increases and decreases in all of the other variables.[7] Since we are primarily interested in the total effect of the explanatory variables on the probability of a prime rate change, it is convenient to re-parameterize the k-order distributed lag as

$$\beta(L)X_{t-1}=\mu X_{t-1}-\Gamma(L)\Delta X_{t-1}, \tag{10}$$

where $\beta(L)$ and $\Gamma(L)$ are the usual polynomial lag operators, $\mu = \beta_1 + \ldots + \beta_k$ and $\Gamma_1 = \beta_2 + \ldots + \beta_k$, $\Gamma_2 = \beta_3 + \ldots + \beta_k$, etc. The relative speed at which banks respond to changes in the commercial paper and discount rates can be obtained by examining how rapidly the estimated coefficients converge to μ.

IV. THE ESTIMATES

Since it is well established [e.g., Smirlock and Yawitz (1985), Cook and Hahn (1988) and Thornton (1986, 1994)] that market interest rates do not respond to technical discount rate changes, i.e., changes made solely to keep the discount rate in line with market interest rates, initially the model was specified with discount rate increases and decreases partitioned into technical

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[7]Because the number of combinations would be prohibitively large, all possible models with lag lengths less than or equal to some maximum lag length were not estimated to select the "optimal" lag length by a formal model selection criterion, such as Akaike or Schwartz. Instead, some very limited experimentation was undertaken using likelihood ratio tests for the significance of additional lags for each explanatory variable separately.

and all other or non-technical changes. The null hypothesis that the coefficients for technical and non-technical discount rate changes are equal could not be rejected at any reasonable significance level.[8] Hence, the distinction between technical and non-technical discount rate changes, which is critical for the reaction of market interest rates to changes in the discount rate, does not appear to be important for the response of the administered prime rate. It may be that both non-technical and technical discount rate changes provide with similar information about the level of the interest rates. Non-technical discount rate changes portend a change in the level of interest rates, while technical changes in some sense ratify changes that have already taken place. Hence, discount rate increases provide banks with additional justification for raising their lending rates and discount rate cuts provide downward pressure on lending rates.

Figure 2 shows the actual weekly changes in the prime and the expected change in the prime from the model. Interestingly, the model appears to predict weekly changes best when interest rate volatility is high. This impression is confirmed by a comparison of cumulative actual and expected changes in the prime rate for various subperiods presented in Table 2. During the period from October 5, 1979 to September 24, 1982 the cumulative expected change in the prime was 0.261, nearly identical to the actual cumulative change of zero. In contrast, the model cumulatively underpredicts

[8]The chi-square statistic, with 12 degrees of freedom, was 8.57.

absolute changes in the prime rate for periods of low interest rate volatility before and after this period. Consistent with the conventional wisdom it appears that banks have been reluctant, relative to past behavior, to reduce the prime rate in the last recession and recovery. The model cumulatively overpredicts the decline in the prime rate since late 1990.

The perception of considerable inertia in the prime rate from Figure 2 is confirmed by estimates of the constant terms presented in Table 3. The inertia of the prime rate is reflected in the large estimated difference between c_3 and c_2. The gap between these two constants is more than four times larger than between any other adjacent constants. This difference implies that the explanatory variables must have relatively extreme values before the probabilities of prime rate changes (other than zero) are very high. This likely accounts for the model's better performance during periods of high interest rate volatility.[9]

Care must be exercised in interpreting the coefficients in a ordered probit model, because the odds of a decrease versus the odds of an increase in the prime rate is not symmetric about the mean of $X\beta$ due to the effects of $c_1, \ldots, c_6$. Hence, in reporting the results of an ordered probit model, it is useful to report

[9]The model was also estimated by weighting the first difference in the explanatory variables by their standard deviations over various subperiods. The performance of the model was worse than when percentage changes were used and the model with percentage changes performed only marginally better than the model that simply used first differences of levels. These experiments tend to support the notion that there is considerable inertia in the prime rate.

the effect of a change in $X\beta$ on probabilities of the eight possible changes in the prime rate when X is evaluated at the sample mean. The signs of these derivatives, presented in Table 4, show that the shift in probability mass is precisely from positive to non-positive changes as $X\beta$ increases away from its mean.

Generally, the estimated coefficients presented in Table 3 provide strong support for asymmetry in the prime rate. As expected, the initial coefficient, β_1, and the sum of the coefficients, μ, are negative for both increases and decreases in the discount rate. Consistent with the asymmetry hypothesis, however, only the coefficients on increases are statistically significant at the 5 percent level. Moreover, the absolute values of β_1 and μ are larger for discount rate increases than decreases. Table 5 presents formal tests of the equality of various parameters for increases and decreases in the rates and rate spreads. The null hypothesis of equality is rejected at the 5 percent level or less for all the coefficients except β_1. The lack of significance of this test is not very important, given that the estimate of β_1 for decreases was not significantly different from zero. Hence, the evidence suggests asymmetry in the response of the prime rate to changes in the discount rate. Moreover, the point estimates suggest asymmetry in the speed of response as well.

The results for the response of the prime rate to increases and decreases in the commercial paper rate also point to asymmetry. Increases in the commercial paper rate generate larger responses in the prime rate than decreases, as indicated by the absolute values of μ, β_1 and Γ_1. Moreover, the absolute magnitude coefficient μ is significantly larger for increases than decreases. Hence, there is evidence of asymmetry in the magnitude of the response to changes in the commercial paper rate. The fact that the null hypothesis that β_1 is zero is rejected at the 10 percent significance level for increases in the commercial paper rate, but not at any reasonable significance level for decreases in the commercial paper rate also suggests asymmetry in the speed of response. Nevertheless, these conclusions must be tempered by the model's failure to reject the hypothesis of the equality of all the coefficients for increases and decreases in the commercial paper rate.

There is no strong evidence of asymmetric behavior of the prime rate in response to changes in the spread between the federal funds rate and the discount rate. The coefficient μ is negative for both increases and decreases in the rate spread, as anticipated, and both are statistically significant at a 5 percent significance level when tested against the one-tailed alternative. The difference between these coefficients is not statistically significant, however. The coefficient β_1 is negative and statistically significant only for decreases, suggesting that the prime rate will respond more quickly to decreases than increases in the spread between the federal funds and discount rates. The interpretation of these coefficients must be tempered by the fact that the null hypothesis that all of the coefficients are equal cannot be rejected.

The response of the prime rate to changes in the prime rate-commercial paper rate spread also provides some evidence of asymmetry. The initial coefficient, β_1, is highly significant for increases, but not statistically significant for decreases. Moreover, the difference is statistically significant. The fact that neither the estimate of μ nor Γ_1 is statistically significant for increases suggests that the prime rate responses rapidly to changes in the rate spread.

VI. CONCLUSIONS

We examine weekly changes in the prime rate and find evidence that the prime rate responds asymmetrically to changes in the commercial paper rate, the Federal Reserve's discount rate and the spread between the prime rate and the commercial paper rate. The strongest evidence of asymmetric behavior is in the response of banks to changes in the discount rate. Banks respond strongly and quickly to increases in the discount rate, but not decreases. Moreover, banks respond to changes in the discount rate whether such changes stimulate changes in market interest rates or merely ratify recent shifts in market interest rates.

While we are not certain why bank lending rates respond asymmetrically, it seems likely that informational asymmetries lead to a countercyclical risk premium on bank loans to reflect the cyclical default and failure probabilities of small firms. Banks collect the larger risk premia by lowering their lending rates slowly, relative to market rates, during cyclical downturns.

Whatever its source, asymmetry in bank lending rates might be an important factor behind the apparent preference of small firms for internal finance, in that, with the asymmetry, the relative cost of bank finance rises when interest rates are falling. Hence, our results bolster existing explanations as to why some firms that have direct access to financial markets might eschew bank finance, and why bank-dependent firms might rely heavily on internal finance.

In addition, the finding that the cost of external funds, relative to the opportunity cost of internal funds, may be countercyclical lends support to the Fazzari and Peterson (1993) hypothesis that firms use inventories of working capital to smooth out the effect of cyclical variations in the flow of internal funds available to finance fixed investment. Moreover, asymmetry in bank lending rates may account for some of the recently documented asymmetry in the effects of monetary policy. The extent to which asymmetry in bank lending rates contributes to any of these observations is the subject of further research.

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Table 1: Descriptive Statistics for Prime Rate Changes	
Mean = 0.00 Variance = .054	
Basis-Point Change in the Prime Rate	Frequency
-200	1
-100	9
-50	52
-25	38
0	840
25	62
50	33
75	4
100	6
125	2
150	2

Table 2
Cumulative Change and Expected Cumulative Change in Prime Rate

Sub-period	Actual	Expected
02/16/73-09/28/79	7.5000	4.3844
10/05/79-09/24/82	0.0000	0.2607
10/01/82-11/30/90	-3.5000	-1.9401
12/07/90-02/05/93	-4.0000	-5.0407

Table 3
Estimates from the Ordered Probit Model of Changes in the Prime Rate:
Log-likelihood value = -623.23

Variable	Parameter	Estimate	Standard Error	P-Values
Intercept		-3.691	.259	.0001
Constants	C_1	1.484	.224	
	C_2	1.863	.227	
	C_3	5.358	.258	
	C_4	6.039	.268	
	C_5	6.871	.298	
	C_6	7.090	.312	
Discount Rate (Increase)	β_1	-13.169	3.979	.0009
	μ	-36.191	11.609	.0018
	Γ_1	-23.020	10.244	.0246
Discount Rate (Decrease)	β_1	-5.731	3.547	.1061
	μ	-3.413	10.551	.7463
	Γ_1	2.318	9.644	.8181
Commercial Paper Rate (Increase)	β_1	-7.485	4.520	.0978
	μ	-55.545	8.834	.0001
	Γ_1	-48.060	7.912	.0001
Commercial Paper Rate (Decrease)	β_1	-1.457	4.828	.7613
	μ	-34.974	9.336	.0002
	Γ_1	-33.508	8.292	.0001
Federal Funds-Discount Rate Spread (Increase)	β_1	.011	.016	.5148
	μ	-.079	.041	.0527
	Γ_1	-.090	.035	.0099
Federal Funds-Discount Rate Spread (Decrease)	β_1	-.046	.019	.0161
	μ	-.121	.044	.0060
	Γ_1	-.076	.038	.0438
Prime Rate-Commercial Paper Rate Spread (Increase)	β_1	.174	.046	.0002
	μ	.069	.088	.4334
	Γ_1	-.105	.077	.1746
Prime Rate-Commercial Paper Rate Spread (Decrease)	β_1	.032	.045	.4668
	μ	-.159	.082	.0535
	Γ_1	-.191	.073	.0082

Note: P-values are for a two-tailed test of the hypothesis that the coefficient is zero against the non-zero alternative.

Table 4
Shift in Probability Mass from a Change in $X\beta$

Size of Change in Prime Rate	Effect of an Increase in $X\beta$ on Probability of Prime Rate Change (Variables evaluated at the sample means.)
$\leq$ -1.00	+
-.50	+
-.25	+
0	+
.25	-
.50	-
.75	-
$\geq$ 1.00	-

Table 5
Tests for Asymmetry in the Prime Rate

Variable	μ	β_1	Γ_1	$\beta_1, \ldots, \beta_k$
Discount Rate	2.354 (.01)	1.470 (.07)	1.987 (.02)	15.90 (.01)
Commercial Paper Rate	1.619 (.05)	0.956 (.16)	1.324 (.09)	3.98 (.41)
Federal Funds-Discount Rate Spread	1.064 (.14)	2.138 (.02)	0.379 (.35)	4.80 (.31)
Prime Rate-Commercial Paper Rate Spread	1.769 (.04)	2.168 (.02)	0.773 (.22)	10.62 (.03)

Note: P-values are in parentheses. The tests for symmetry across increases and decreases for μ, β_1 and γ are one-tailed t-test of the null hypothesis that the coefficients on increases and decreases are equal against the null hypothesis that absolute response is larger for increases than for decreases. The test statistic for equality across all β coefficients is chi-squared with four degrees of freedom (six for discount rate changes).

Figure 1
Percentage of short- and long-term (greater than one year) business loans made above the prime lending rate

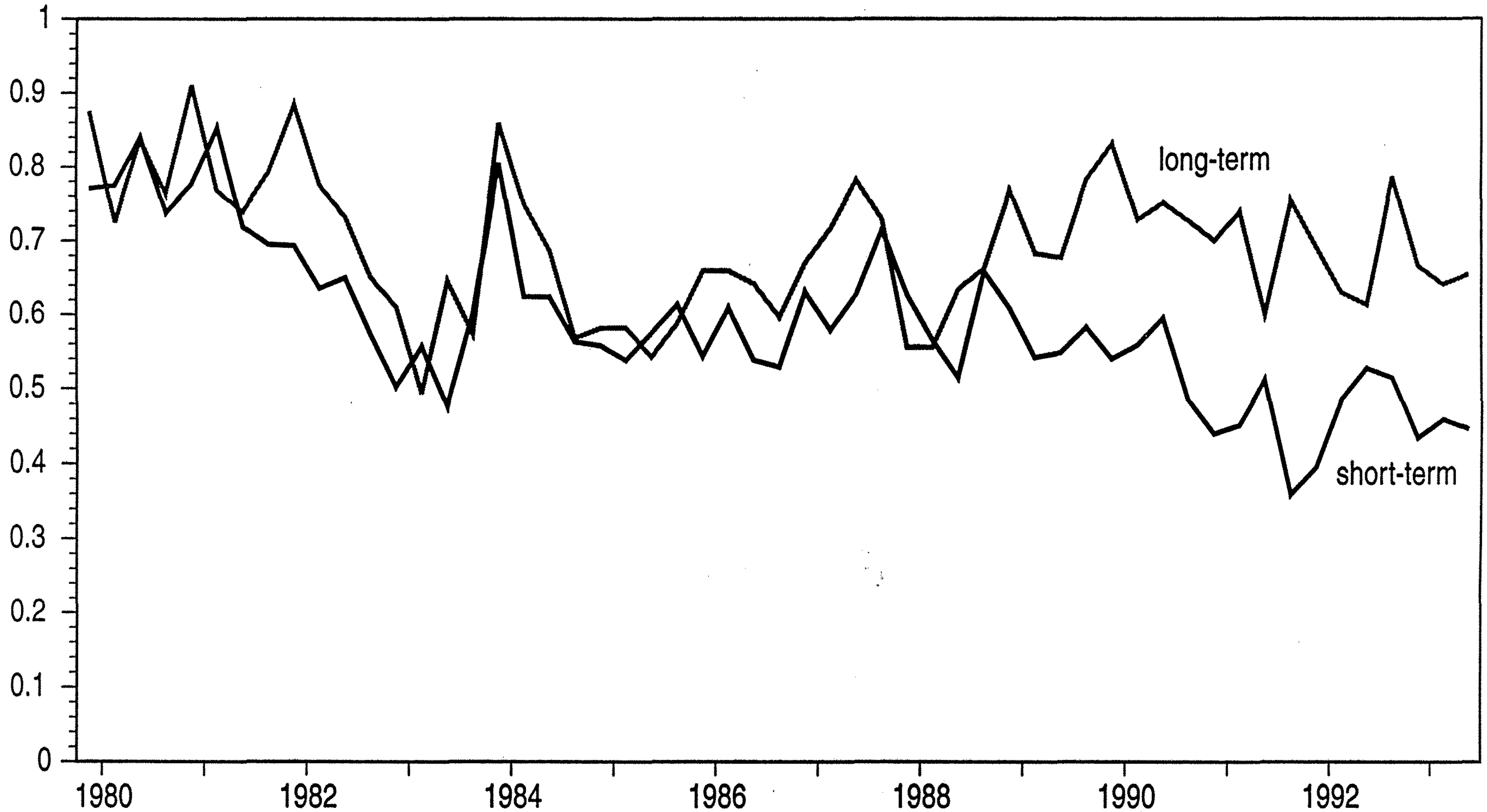

Figure 2
Fit of Ordered Probit Model Of Prime Rate